

REMARKS

Claims 8-13 are now pending in the application. By this amendment, claim 8 is amended for the Examiner's consideration. No new matter is added. Applicants request reconsideration of the rejected claims in view of the above amendments and the following remarks.

Formal Matters

Applicants appreciate the indication that the previously submitted amendments to the specification and drawings are acceptable and that the objections previously set forth with regard to the specification and drawings are now withdrawn. Applicants also appreciate the indication that the previous §112, 2nd paragraph rejection is withdrawn.

§103(a) Rejection

Claims 8, 9 and 13 are rejected under 35 U.S.C. §103(a) over USPN 3,639,081 to Gray et al. This rejection is respectfully traversed.

Gray is directed to a liquid booster system for water systems. This system includes three pumps 12, 13 and 14, with respective valve systems. The valves 16, 17 and 18 are pressure relief valves as discussed at col. 3, lines 60-63. In particular,

[e]ach of the pressure regulating valves 16-18 conducts the flow of water only unidirectionally – that is, in addition to regulating the outward pressure, the valves 16-18 act as check valves.

Gray further shows gate valves 20-25 within the system. The gate valves 20-23, as described at col. 3, lines 70-75, are interposed in the inlet conduits of the respective pumps 12, 13 and 14. On the other hand, the gate valves 23, 24 and 25 are interposed at the outlet conduits of each of the pumps 12-14 for shutting them down individually, if desired, without interrupting the systems operations.

On the other hand, the invention is directed to a fuel injector system. This is very different from that of the Gray application. First, there would be no requirement to include gate valves on both the upstream and downstream side of the pump to individually shut down the pump when a certain pressure has been reached. But, the pumps of the invention are used for variable pressure applications. The pumps provide the system, used with the invention, a certain demand pressure, either a low pressure, V_1 , a higher pressure V_2 or a combined higher pressure of the entire pump system V_3 . The valves means of the invention are used to maintain a steady state control and smooth transition between different pressures; that is, a linear flow as shown in Figure 5 of the disclosure. This simply is not contemplated by Gray. Gray is only contemplating the application of different pressure by controlling the valves, without concerning for a steady flow control. This would not be a requirement of the Gray water system, but is important to the invention. The check valves are also important to avoid cross contamination in the rails of the invention.

Additionally, the invention recites, in part,

a first check valve upstream from a first pump of the at least two pumps and a first valve of the at least two valves, and
a second check valve upstream from a second pump of the at least two pumps and a second valve of the at least two valves.

This feature is shown in all of the embodiments of the invention, as seen in Figures 2-4. However, Gray does not teach or even remotely suggest this feature. In Gray, the valves 16-18 are positioned between the respective pumps and the respective upstream shut-off valves. There is nowhere any contemplation of check valves above the valves 16-18. In fact, such a configuration would be absolutely redundant to the placement of the valves 16-18, which can already act as check valves. But, in the invention, the check valves ensures that the pump in each respective line are not running against a low pressure of a valve of the at least one valve associated with the second stage which is in an "off" position in each of the respective lines.

Moreover, Gray clearly indicates that all of the pumps may be shut down when the pressure of the tank reaches a certain level. At col. 5, lines 41-45, once the pumps have been shut down, the input conduit and the ratameter will be isolated from the system demand by the deenergized pumps and the operation of the pumps become independent of flow. The only time the pumps can be reenergized again is when the tank pressure falls to a point where a switch (switch 74) closes. This would not happen in the system of the invention.

Lastly, Applicants submit that one of ordinary skill in the art would not be motivated to look at the Gray system for the teachings thereof in order to find obvious the claimed invention. As discussed above, one of ordinary skill in the art would not look to the Gray system, a system of such divergent and different application, when designing the system of the invention, directed to a fuel injection system. The Gray system is designed for water systems to ensure that a tank pressure is maintained at a certain level.

Rejoinder

Applicants respectfully submit that claim 8 is an allowable generic claim. Accordingly, rejoinder of claims 10-12 is respectfully submitted as being proper.

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Conclusion

In view of the foregoing amendments and remarks, Applicant submits that all of the claims are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue. The Examiner is invited to contact the undersigned at the telephone number listed below, if needed. Applicant hereby makes a written conditional petition for extension of time, if required.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Andrew M. Calderon', with a horizontal line drawn through the middle of the signature.

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